

...DECEMBER 2010 REGIONAL CLIMATE SUMMARY...

SUMMARY FOR THE SAN FRANCISCO BAY AREA AND MONTEREY BAY AREA...

...A WET MONTH WITH MILD TEMPERATURES...

DECEMBER 2010 WAS MUCH WETTER THAN NORMAL ACROSS THE REGION. ABOUT THREE QUARTERS OF DECEMBER'S PRECIPITATION FELL DURING THE SECOND HALF OF THE MONTH WHEN THE SOUTHERN BRANCH OF THE POLAR JET BECAME ACTIVE ACROSS THE EASTERN PACIFIC. MUCH OF OUR DECEMBER RAIN FELL FROM A WARM AND VERY MOIST AIRMASS THAT ORIGINATED IN THE SUBTROPICS. CONSEQUENTLY...AVERAGE TEMPERATURES FOR THE MONTH WERE WARMER THAN NORMAL...PRIMARILY DUE TO MILD NIGHTTIME TEMPERATURES.

COOLER THAN NORMAL CONDITIONS AT THE END OF NOVEMBER CARRIED OVER INTO THE FIRST FEW DAYS OF DECEMBER. BUT COOL CONDITIONS SOON ENDED AND...EXCEPT FOR A FEW ISOLATED DAYS...DIDN'T REALLY RETURN AGAIN UNTIL NEAR THE END OF THE MONTH. A DEEPENING TROUGH OF LOW PRESSURE OFF THE COAST BROUGHT WARMER AIR IN FROM THE SOUTH ON THE 4TH AND 5TH. THIS TROUGH ALSO PRODUCED LIGHT TO MODERATE AMOUNTS OF RAIN...MAINLY LATE ON SUNDAY...DECEMBER 5. A WARM FRONT PRODUCED ANOTHER ROUND OF LIGHT TO MODERATE RAIN ON THE 8TH AND 9TH. A MOIST AIRMASS REMAINED IN PLACE AFTER THE WARM-FRONTAL RAINS ENDED. SO...WHEN HIGH PRESSURE DEVELOPED OVER THE AREA ON THE 10TH...FOG FORMED. PATCHY DENSE FOG OCCURRED DURING THE WEEKEND OF THE 11TH AND 12TH. DENSE FOG WAS MOSTLY CONFINED TO AREAS NEAR THE OCEAN ON THE MORNING OF 11TH...AND THEN NEAR SAN FRANCISCO BAY ON THE MORNING OF THE 12TH. FOG AND LOW CLOUDS WERE SWEEPED AWAY ON THE 14TH WHEN A WEATHER SYSTEM ARRIVED FROM THE NORTHWEST. THIS SYSTEM PRODUCED DECEMBER'S THIRD LIGHT TO MODERATE PRECIPITATION EVENT.

BY FRIDAY DECEMBER 17 ALL THE INGREDIENTS WERE IN PLACE FOR A PERIOD OF SUSTAINED WET WEATHER ACROSS THE STATE OF CALIFORNIA. A DEEP AND BROAD UPPER TROUGH HAD DEVELOPED OVER THE NORTHEASTERN PACIFIC...A TROUGH THAT REMAINED QUASI-STATIONARY OFF THE WEST COAST FOR NEARLY A WEEK. THIS TROUGH GUIDED A PLUME OF VERY MOIST AIR FROM THE SUBTROPICS INTO CALIFORNIA. THE HIGHEST CONCENTRATION OF MOISTURE WAS DIRECTED AT SOUTHERN CALIFORNIA WHERE RECORD-SETTING RAINFALL ACCUMULATED FROM THE 17TH THROUGH THE 22RD...TRIGGERING FLOODS AND MUDSLIDES ACROSS THE SOUTHLAND. RAINFALL IN THE SAN FRANCISCO AND MONTEREY BAY AREAS DURING THIS SAME PERIOD OF TIME WAS NOT AS INTENSE OR PERSISTENT AS IN SOUTHERN CALIFORNIA...AND SO ONLY MINOR NUISANCE FLOODING WAS REPORTED IN OUR AREA. EVEN SO...RAINFALL TOTALS WERE QUITE IMPRESSIVE...ESPECIALLY IN THE SANTA CRUZ AND SANTA LUCIA MOUNTAIN RANGES. RAINFALL PEAKED ON SUNDAY AND MONDAY...THE 18TH AND 19TH...WHEN RAIN WAS ACCUMULATING AT THE RATE OF 4 TO 6 INCHES PER DAY AT SOME OF THE WETTEST SPOTS IN SANTA CRUZ MOUNTAINS AND SANTA LUCIAS. RAINFALL TOTALS FROM THE 17TH THROUGH THE 22ND FOR SELECT LOCATIONS INCLUDE:

LOCATION	6 DAY RAIN TOTAL
SANTA ROSA AIRPORT	3.70

VENADO (NW SONOMA COUNTY)	6.44
NAPA	4.13
YOUNTVILLE	4.50
SAN RAFAEL	4.12
KENTFIELD	5.58
SAN FRANCISCO	2.95
OAKLAND	3.60
CONCORD	2.71
LIVERMORE AIRPORT	1.69
MOFFETT FIELD	1.66
GILROY	3.40
LEXINGTON RESERVOIR	6.15
UVAS CANYON PARK	12.32
MOUNT HAMILTON	3.54
SANTA CRUZ	4.13
BOULDER CREEK	7.17
BEN LOMOND	9.85
MONTEREY	1.72
SALINAS	1.37
PINNACLES NATIONAL MONUMENT	2.44
BIG SUR	7.64
HOLLISTER	1.68
THREE PEAKS (SW MONTEREY CO)	16.50

AS CAN BE SEEN BY THE ABOVE LIST...RAINFALL TOTALS OVER THESE SIX DAYS WERE MUCH HIGHER IN THE COASTAL MOUNTAIN RANGES COMPARED TO LOCATIONS NEAR SEA LEVEL. FOR INSTANCE...THE WETTEST LOCATIONS IN THE SANTA CRUZ MOUNTAINS ACCUMULATED MORE THAN FIVE TIMES THE AMOUNT OF RAIN THAT FELL ON THE DOWNWIND SIDE OF THE MOUNTAIN RANGE AT MOFFETT FIELD NEAR SAN FRANCISCO BAY. AS IS TYPICALLY THE CASE WITH WARM RAIN EVENTS SUCH AS THIS...OROGRAPHIC ENHANCEMENT ADDED SIGNIFICANTLY TO RAIN INTENSITY.

ALONG WITH THE SOAKING RAINS FROM DEC 17-22...THERE WERE ALSO PERIODS OF STRONG AND GUSTY SOUTH WINDS. HOWEVER...WINDS GENERALLY WERE NOT STRONG ENOUGH TO PRODUCE SIGNIFICANT DAMAGE OR MORE THAN SCATTERED POWER OUTAGES.

TWO MORE STORM SYSTEMS IMPACTED THE REGION LATE IN THE MONTH. A RELATIVELY MILD STORM ARRIVED FROM THE WEST ON CHRISTMAS DAY AND PRODUCED MODERATE AMOUNTS OF WIND AND RAIN. THEN...LATE ON TUESDAY THE 28TH A COLD STORM SYSTEM MOVED IN FROM THE NORTH...PRODUCING ONE LAST SOAKING RAIN AND RAIN RATES THAT WERE BRIEFLY HEAVY. THE BRISK AIRMASS THAT FOLLOWED THE COLD FRONT ON THE 28TH BROUGHT 2010 TO A CHILLY END.

RAIN TOTALS FOR DECEMBER 2010 WERE WELL ABOVE THE 30-YEAR AVERAGE. IN FACT...FOR ALL CLIMATE STATIONS AVERAGED TOGETHER...DECEMBER 2010 RAINFALL WAS ABOUT 200 PERCENT OF NORMAL. AFTER PICKING UP TWICE THE NORMAL DECEMBER RAINFALL...SEASON-TO-DATE RAINFALL TOTALS AS OF DECEMBER 31ST RESTED COMFORTABLY ABOVE NORMAL AT NEARLY ALL LOCATIONS...RANGING FROM ABOUT 110 PERCENT OF NORMAL IN THE SOUTH BAY TO NEARLY 150 PERCENT OF NORMAL FROM SAN FRANCISCO NORTHWARD.

AVERAGE DECEMBER HIGH TEMPERATURES WERE A LITTLE COOLER THAN NORMAL AT A MAJORITY OF LOCATIONS...BUT FOR THE MOST PART HIGHS WERE WITHIN A FEW DEGREES OF NORMAL. THE WARM NATURE OF MOST PRECIP EVENTS MEANT AVERAGE LOWS FOR THE MONTH WERE WELL ABOVE NORMAL...ESPECIALLY FOR VALLEY LOCATIONS WHICH DIDN'T SEE MANY CLEAR COLD NIGHTS. BECAUSE OF THE MILD NIGHTS...AVERAGE TEMPERATURES WERE ABOVE NORMAL AT NEARLY ALL LOCATIONS.

...DECEMBER REGIONAL TEMPERATURE SUMMARY...

			DEPARTURE			DEPARTURE
LOCATION	AVG HIGH	NORMAL HIGH	FROM NORMAL	AVG LOW	NORMAL LOW	FROM NORMAL
NORTH BAY...						
ANGWIN	49.8	52.7	-2.9	40.1	37.9	2.2
KENTFIELD	55.0	56.4	-1.4	45.4	40.2	5.2
NAPA	56.7	57.7	-1.0	44.7	38.5	6.2
PETALUMA	55.7	57.6	-1.9	43.6	37.5	6.1
SAINT HELENA	55.3	58.2	-2.9	44.3	36.2	8.1
SAN RAFAEL	54.6	56.6	-2.0	45.5	41.0	4.5
SANTA ROSA	56.6	58.0	-1.4	42.8	38.2	4.6
SAN FRANCISCO PENINSULA...						
REDWOOD CITY	59.2	58.6	0.6	44.4	39.3	5.1
SAN FRANCISCO AIRPORT	56.8	56.4	0.4	47.4	43.0	4.4
SAN FRANCISCO DOWNTOWN	57.1	58.0	-0.9	49.1	46.7	2.4
EAST BAY...						
BERKELEY	58.0	56.8	1.2	45.7	44.1	1.6
LIVERMORE	57.7	57.1	0.6	43.0	36.9	6.1
MARTINEZ	56.5	55.5	1.0	40.2	38.7	1.5
MOUNT DIABLO JUNCTION	52.3	56.2	-3.9	41.6	39.6	2.0
NEWARK	58.8	57.7	1.1	45.9	41.7	4.2
OAKLAND	59.3	57.7	1.6	47.7	44.6	3.1
SOUTH BAY AND SANTA CRUZ COUNTY...						
BEN LOMOND	58.0	61.4	-3.4	41.6	35.9	5.7
GILROY	60.1	60.2	-0.1	43.3	36.5	6.8
LOS GATOS	57.7	58.0	-0.3	44.1	37.9	6.2
MOUNT HAMILTON	47.5	49.9	-2.4	37.7	37.5	0.2
SAN JOSE	60.0	57.9	2.1	46.7	41.0	5.7
SANTA CRUZ	57.8	60.6	-2.8	44.1	39.4	4.7
WATSONVILLE	60.7	60.8	-0.1	42.9	38.5	4.4

MONTEREY AND SAN BENITO COUNTIES...

CARMEL VALLEY	60.6	62.7	-2.1	41.7	39.0	2.7
HOLLISTER	58.5	60.8	-2.3	41.5	36.7	4.8
KING CITY	61.3	62.7	-1.4	43.1	34.3	8.8
SALINAS	62.9	62.9	0.0	43.5	40.6	2.9

...DECEMBER REGIONAL PRECIPITATION SUMMARY...

LOCATION	NOV TOTAL	AVERAGE DEC PRECIP	PERCENT OF NORMAL
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NORTH BAY...

ANGWIN	11.31	6.25	181
CALISTOGA	10.60	7.30	145
KENTFIELD	12.46	7.38	169
MUIR WOODS	11.61	5.57	208
NAPA	8.64	3.89	222
OCCIDENTAL	14.69	8.38	175
PETALUMA	8.35	3.83	218
SAINT HELENA	10.72	5.41	198
SAN RAFAEL	8.12	4.84	168
SANTA ROSA	8.38	4.49	187

SAN FRANCISCO PENINSULA...

PACIFICA	7.93	4.55	174
REDWOOD CITY	M	2.80	M
SAN FRANCISCO AIRPORT	6.00	2.91	206
SAN FRANCISCO DOWNTOWN	6.71	3.05	220

EAST BAY...

BERKELEY	7.88	3.46	228
LIVERMORE	3.87	2.04	190
MARTINEZ	5.50	2.79	197
MOUNT DIABLO JUNCTION	8.05	3.35	240
NEWARK	3.64	2.08	175
OAKLAND	8.67	3.13	277

SOUTH BAY AND SANTA CRUZ COUNTY...

BEN LOMOND	16.39	7.14	230
GILROY	4.71	3.00	157
LOS GATOS	7.18	3.33	216
MOUNT HAMILTON	6.90	3.11	222
SAN JOSE	M	2.00	M
SANTA CRUZ	9.40	4.22	223

WATSONVILLE	6.67	3.41	196
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MONTEREY AND SAN BENITO COUNTIES...

CARMEL VALLEY	4.15	3.38	123
HOLLISTER	2.02	1.59	127
KING CITY	2.93	1.59	184
MONTEREY	M	2.73	M
PINNACLES NATIONAL			
MONUMENT	M	2.45	M
SALINAS	3.53	2.05	172

...DAILY TEMPERATURE RECORDS FOR DECEMBER 2010...

NONE

...MONTHLY RANKS FOR DOWNTOWN SAN FRANCISCO...

AVERAGE HIGH TEMPERATURE.....57.1.....53RD WARMEST OUT OF 136 YEARS  
 AVERAGE LOW TEMPERATURE.....49.1.....18TH WARMEST OUT OF 136 YEARS  
 PRECIPITATION.....6.71 INCHES.....31ST WETTEST OUT OF 161 YEARS

...MONTHLY EXTREMES FOR SELECT LOCATIONS...

LOCATION	WARMEST DAY(S)	COOLEST DAY(S)	WETTEST DAY(S)
SAN FRANCISCO	12/6 12/9 63 DEG	12/30 12/31 42 DEG	12/19 1.22 IN
SAN JOSE	12/5 12/10 67 DEG	12/30 34 DEG	12/19 0.75 IN
SALINAS AP	12/12 71 DEG	12/30 35 DEG	12/28 0.71 IN

NOTE: THIS CLIMATOLOGICAL DATA IS PRELIMINARY. FOR OFFICIAL  
 CERTIFIED CLIMATOLOGICAL DATA PLEASE CONTACT THE NATIONAL  
 CLIMATIC DATA CENTER AT 828-271-4800 OR <http://www.ncdc.noaa.gov>.  
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